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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,616	12/28/2000	Michel Bruno	CH919990030US1	9446

7590 11/13/2003
Robert M. Trepp
IBM CORPORATION
Intellectual Property Law Dept.
P.O. Box 218
Yorktown Heights, NY 10598

EXAMINER

FUNK, STEPHEN R

ART UNIT PAPER NUMBER

2854

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,616

Applicant(s)

BRUNO ET AL.

Examiner

Stephen R Funk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-27,29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-18,22-27 and 29 is/are rejected.
- 7) ☒ Claim(s) 19-21 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Europe on 12/31/1999. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

The disclosure is objected to because of the following informalities: On page 7 line 11 "respectively substrate" should be corrected. On page 14 line 18 it is not clear if the "black lines" refer to the lines (11) and (12) in Figure 3A. Figure 3E does not appear to be addressed in the specification. Appropriate correction is required.

The amendment filed August 18, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The recitation in the paragraph beginning on page 7 line 14 of the force transducer comprising "any device or sensor" and the recitation in the paragraph beginning on page 15 line 10 that the force transducer "may comprise a measuring device comprising one or more pressure sensors" do not appear to be supported by the original disclosure. Based on the description of Figures 3A - 3F and pages 7 and 14 - 15 in the specification it *appears* that the force transducers are merely printed lines that show the relative printing force and lateral shift of the lines. See page 7 line 20 - page 8 line 5 and page 14 line 18 - page 15 line 8 in the specification. Furthermore, it is not apparent how "sensors" would be incorporated into the force transducer zones illustrated in Figures 3A - 3F.

Applicant is required to cancel the new matter in the reply to this Office Action.

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Claims 11 - 15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In each of claims 11 - 15 the force transducer zone is not adequately supported by the disclosure to enable one of ordinary skill in the art to make or use the invention. See page 3 lines 17 - 23, page 7 line 14 - page 8 line 5, and page 14 line 14 - page 15 line 12 in the specification and Figures 3A - 3F in the drawings. It is not clear what makes up the force transducers, where they are located, and how they are interpreted to provide a measure of the stamping force. Furthermore, the description of Figures 3A - 3E is completely inadequate in describing the force transducers. Although Figure 3F shows the force transducer zones in the margins of the stamp it is still not clear what the force transducers are or how they work.

Claims 1, 2, 4 - 14, 16 - 27, 29, and 30 are objected to because of the following informalities.

In each of claims 1, 2, 14, and 15 a comma should be inserted after "substrate" to more clearly reflect that the following structure is part of the stamp and not the substrate.

In claim 12 line 2 "the stamp perimeter" would appear to be a double recitation of "the margin" in claim 11 line 2. Note that both describe the location of the force transducer zone.

In claim 19 line 4 "n" should presumably be --in--. Also in line 4 --free-- should be inserted after "areas" so as to provide consistent terminology.

In claim 22 line 1 "a" should be deleted.

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In claim 23 line 2 --said-- should be inserted before "lock elements", second occurrence, to accurately reflect that the lock elements have been previously recited.

In claim 27 line 2 "the hard support posts" lacks proper antecedent basis.

In claim 30 lines 2 and 3 "a closed gaseous network" and "at least one passage channel" would appear to be double recitations of the same in claim 19.

Claims 12 - 14 and 22 - 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12 lines 2 - 4 it is not clear which "structures" are being referred to that are "proximate said area free of structures" and "which bounds the area free of structures in at least one direction". Which structures are these? Are these structures shown in the drawings?

In claim 13 lines 2 - 3 it is not clear what "linear structures" is referring to for the same reasons stated above in claim 12. Which structures are these? Are these structures shown in the drawings?

In claim 14 lines 9 - 12 are indefinite for the reasons stated above with respect to claim 13.

In claim 17 line 3 "like" renders the claim indefinite because the claim includes elements not actually disclosed (that encompassed by "like"), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.05(d).

In each of claims 22 - 27 the recitation of the stamp device comprising the self aligning means, i.e. lock elements, on the substrate surface renders the scope of the claims indefinite. Claim 1 only sets forth a stamp device "for" printing on a substrate, but not the substrate itself.

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However, each of claims 22 - 27 positively recite structure of the substrate as an element of the stamp device. Claims 22 - 27 could be corrected by claiming the stamp device in combination with the substrate or maintaining the self-aligning means (lock elements) on the substrate surface inferentially recited.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4 - 10, 16 - 18, 22, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biebuyck et al. (US 5,817,242) in view of Whitesides et al. (US 6,180,239).

Biebuyck et al. teach a stamp comprising a rigid carrier layer (17), a patterned layer (12), and a soft layer (14) softer than the patterned layer. See column 3 line 33 - column 4 line 2 and Figure 1E of Biebuyck et al. In view of the materials disclosed by Biebuyck et al. for the carrier layer (PMMA, ITO), the thinness of the carrier layer, and that it provides additional support and enhanced stability to the patterned layer it is apparent that this carrier layer is rigid in the x-y plane but flexible in a direction perpendicular thereto. If it can be determined that the carrier layer does not possess these properties, it would have been obvious to one of ordinary skill in the art to provide the carrier layer with rigidity in the x-y plane to prevent shifting of the pattern and flexibility in a plane perpendicular thereto to permit the deformable layer to perform its function of accommodating uneven substrate surfaces. Biebuyck et al. do not teach the patterned layer being stretched. Whitesides et al. teach the conventionality of stretching a patterned layer (22). See column 9 line 32 - column 10 line 17 and Figures 3a - 3c of Whitesides et al. It would have

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been obvious to one of ordinary skill in the art to provide the stamp of Biebuyck et al. with a stretched patterned layer in view of Whitesides et al. to ostensibly increase the distance between the printing structures formed on the patterned layer. It is noted that the prior art need not have the same reasons for providing the stretching to the patterned layer, although the stretching of Whitesides et al. is broadly considered to compensate for mechanical deformation of the patterned layer.

With respect to claim 4 Biebuyck et al. teach that the carrier layer can be an electrically conductive material. In view of this teaching it would have been obvious to one of ordinary skill in the art to provide the stamp of Biebuyck et al. with a thin metal carrier layer as metal is a well known electrically conductive material.

With respect to claims 5 and 6 the depth of the patterned structures of Biebuyck et al. is smaller than the thickness of the soft layer. See Figure 1E of Biebuyck et al.

With respect to claim 6 Biebuyck et al. do not teach the thickness of the patterned layer being greater than the structure depths. Whitesides et al. teach the conventionality of a patterned layer (22) thicker than the structure depths (26). See Figure 3a of Whitesides et al. It would have been obvious to one of ordinary skill in the art to provide the patterned layer of Biebuyck et al. with a thickness greater than the structure depths in view of Whitesides et al. so as to more easily manufacture the pattern from a single layer.

With respect to claim 7 the teaching by Biebuyck et al. that the soft layer is "deformable" would inherently provide a compression modulus less than the compression modulus of the patterned layer.

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With respect to claim 8 any structure (e.g. 15, 16) behind the soft layer inherently provides a pressing force to the stamp when used in a stamping process.

With respect to claims 8 - 10 Biebuyck et al. do not teach a cylindrical press means. However, note Figures 5a - 5c and the paragraph bridging columns 10 and 11 of Whitesides et al., in particular, column 11 lines 9 - 14. It would have been obvious to one of ordinary skill in the art to provide the stamp of Biebuyck et al. with a cylindrical press in view of Whitesides et al. so as to allow the stamp to print on non-planar substrates.

With respect to claims 16 and 17 the broad recitation of posts does not patentably distinguish from other patterned structures. In other words, there is no recited physical difference between some patterned structures and the hard posts, particularly since they can be the same material (claim 17).

With respect to claim 18 the broad recitation of recesses does not patentably distinguish from the areas between the patterned structures.

With respect to claims 22 and 27 see Figure 3, column 3 lines 34 - 37, and column 4 lines 13 - 15 of Biebuyck et al.

With respect to claim 29 the thermal expansion of coefficient of the patterned layer (PMMA) would inherently be greater than the coefficient of the carrier layer (ITO, electrically conductive material).

Claims 14 and 15 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action.

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Claims 11 - 13 and 23 - 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 19 - 21 and 30 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowability: With respect to claims 11 - 15 the total recited combination including, in particular, a patterned layer providing at least one force transducer zone for monitoring a force induced load acting between the stamp and the substrate could not be found in, nor properly rendered obvious by, the prior art of record. With respect to claims 19 - 21 and 30 the total recited combination including, in particular, a carrier layer having passage channels could not be found in, nor properly rendered obvious by, the prior art of record. With respect to 23 - 26 the total recited combination including, in particular, key elements of variable shape and being increasingly larger for fitting with the lock elements could not be found in, nor properly rendered obvious by, the prior art of record.

Applicant's arguments filed August 18, 2003 have been fully considered but they are not persuasive. Applicant's remarks do not adequately describe how the force transducers in Figures 3A - 3F operate. Furthermore, these embodiments do not appear to show any "sensors" that measure a force on the stamp. Lastly, applicant has not addressed the rejections of claims 22 - 27.

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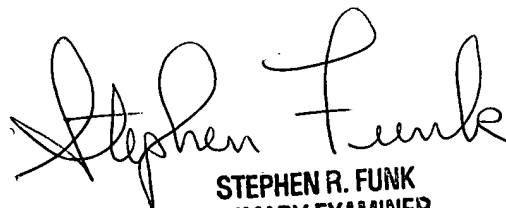
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen R. Funk whose telephone number is (703) 308-0982. The examiner can normally be reached from 7:30am to 6:00pm, except Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Hirshfeld, can be reached on (703) 305-6619.

The fax phone number for official papers is (703) 872-9306. Upon consulting with the examiner *unofficial* papers only may be faxed directly to the examiner at (703) 746-4393.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SRF
November 7, 2003



STEPHEN R. FUNK
PRIMARY EXAMINER